the pharynx originate. The relation of the larval to the adult mouth, and the details of the curious process of the movement of the mouth from a unilateral to a median position, were also included in the scope of the author's inquiries.

American Journal of Science, November 1890.—Further study of the solar corona, by Frank H. Bigelow. The author has made a series of measures upon photographs of coronal streamers taken in 1878, July 29, by Prof. Asaph Hall. This has been done with a view of testing the validity of the equation that he has assigned to the coronal curves in a discussion of them by spherical harmonics.—Superimposition of the drainage in Central Texas, by Ralph S. Tarr.—A description of the "Bernardston Series" of metamorphic Upper Devonian rocks (continued from October), by Prof. B. K. Emerson.—Analysis of rhodochrosite from Franklin Furnace, New Jersey, by P. E. Browning.—A re-determination of the atomic weight of cadmium, by Edw. A. Partridge.—On the occurrence of nitrogen in uraninite, and on the composition of uraninite in general; condensed from a forthcoming Bulletin of the U.S. Geological Survey, by W. F. Hillebrand. It is found that nitrogen exists in uraninite in quantities up to over 2·5 per cent., and seems generally to bear a relation to the amount of UO_2 present. This is the first discovery of nitrogen in the primitive crust of the earth.—Anthophyllite from Franklin, Macon County, North Carolina, by S. L. Penfield.—Pre-glacial drainage and recent geological history of Western Pennsylvania, by P. Max Foshay.—On the so-called perofskite from Magnet Cove, Arkansas, by F. W. Mar.—Experiments upon the constitution of the natural silicates (continued from October), by F. W. Clarke and E. A. Schneider.

SOCIETIES AND ACADEMIES.

LONDON.

Zoological Society, November 4.—Prof. W. H. Flower, F.R.S., President, in the chair.—The Secretary read a report on the additions that had been made to the Society's Menagerie during the months of June, July, August, September, and October, 1890, and called special attention to several of them. Among these were a young male example of the Wild Cattle of Chartley Park, Staffordshire, presented by Earl Ferrers; a Water-Buck Antelope (*Cobus ellipsiprymnus*) from the Somali Coast, presented by Mr. George S. Mackenzie; an example of the Horned Screamer (*Palamedea cornuta*), obtained by purchase; and a young female of Speke's Antelope (*Tragelaphus spekii*), presented by Mr. James A. Nicolls.—The Secretary exhibited, on behalf of Dr. A. B. Meyer, a coloured photograph of a singular variety of the Rose-coloured Pastor (*Pastor roseus*), with a red head, obtained near Sophia; and read a note from Dr. Meyer on this subject.—Mr. G. A. Boulenger made some remarks on an early reference to the Syrian Newt (*Molge vittata*) in Shaw's "Travels," published in 1738.—Mr. J. J. Lister gave an account of his recent visit to the Phœnix Islands, Central Pacific, and exhibited specimens of the birds and eggs obtained there.—Mr. Smith Woodward exhibited and made remarks upon the calvarium of an adult male *Saiga tatarica* from the Pleistocene deposits of the Thames Valley. The specimen had been obtained by Dr. J. R. Leeson from recent excavations in Orleans Road, Twickenham, and was the first trace of this Antelope discovered in Britain.—Mr. W. T. Blanford read a paper on the Gaur (*Bos gaurus*) and its allies, with especial reference to the exhibition of the first living Gaur ever brought to Europe in the Society's Gardens. He described the characters and geographical range of the three allied species of flat-horned taurine Bovines—the Gaur or Sladang (Bison of Indian sportsmen), the Gayal or Mithan (*Bos frontalis*), and the Banteng (*Bos sondaicus*); and he discussed the question whether *B. frontalis* is ever found in the wild state.—A communication was read from Dr. A. B. Meyer, containing the description of a new species of Squirrel from the Philippine Islands, which he proposed to call *Sciurus cagsi.*—Mr. R. Lydekker read a paper on a Cervine jaw from Pleistocene deposits in Algeria, which appeared to indicate the former existence in that country of a large Deer allied to *Cervus cashmirianus.* For this form Mr. Lydekker proposed the name *Cervus algericus.*—A communication was read from Dr. A. Günther, F.R.S., on the skull of the East African Reed-Buck. In this paper Dr. Günther described the skull of an Antelope obtained by Mr. H. C. V. Hunter in Masai Land, which he identified with *Cervicapra bohor* (Rüppell) from Abyssinia. He pointed out the differences from the skull of the South African species, for which the name *Cervicapra redunca* (Pallas) is generally employed.—Mr. P. Chalmers Mitchell described a graphic formula, designed for the purpose of representing geographical distribution. The regions were indicated by lines, the sub-regions by symmetrically placed numbers. This formula could be drawn rapidly, and printed without engraving.—Mr. W. L. Sclater read the description of a Jerboa from Central Asia, which he proposed to refer to a new genus and species of Dipodinæ under the name *Eucoreutes naso.*

Entomological Society, November 5.—The Right Hon. Lord Walsingham, F.R.S., President, in the chair.—Lord Walsingham announced the death of Mr. Atkinson, of the Indian Museum, Calcutta.—Mr. A. H. Jones exhibited a number of Lepidoptera collected in June last near Digne, Basses Alpes, including *Papilio Alexanor; Parnassius Apollo*, larger and paler than the Swiss form; *Anthocharis tagis*, var. *Bellezina; Leucophasia Duponcheli; Thecla spini; Thecla ilicis*, var. *cerri; Lycæna argiades*, var. *corretas; Melitæa deione;* and *Argynnis Euphrosyne.*—Mr. W. E. Nicholson also exhibited a collection of Lepidoptera, formed near Digne last June, which included very large specimens of *Papilio Machaon; P. Podalirius; Thais rumina*, var. *medesicaste*, larger and redder than the Mediterranean specimens; *Apatura ilia*, var. *clytie; Argynnis adippe*, var. *cleodoxa; A. Daphne; Melanargia galatea*, var. *leucomelas;* and many others.—Mr. C. O. Waterhouse exhibited the wings of a large species of *Attacus*, split in halves longitudinally so as to show the upper and lower membranes.—Dr. D. Sharp, F.R.S., exhibited a photograph he had received from Prof. Exner, of Vienna, showing the picture obtained at the back of the eye of *Lampyris splendidula.* He stated that this picture is continuous and not reversed, and shows the outlines of lights and shades of objects at a distance as well as of those closer to the eye.—Mr. H. Goss exhibited a specimen of *Zygæna filipendulæ*, var. *chrysanthemi*, which he had taken at Rhinefield, in the New Forest, on July 15 last. Dr. P. B. Mason said this variety was known on the continent of Europe, and was figured by Hübner in his "Sammlung," a copy of which work he exhibited. He added that he possessed a similar specimen of this variety taken in Wyre Forest, Worcestershire. Colonel Swinhoe stated that he possessed a similar variety of a species of *Syntomis.*—The Rev. Dr. Walker exhibited seven varieties of *Melanippe thuleana*, nine of *Coremia munitata*, and a few of *Noctua conflua*, illustrating the varied forms of these species occurring in Iceland. Dr. Mason said that the only British specimens of *N. conflua* which he had seen resembling the Iceland form of the species were taken at Wolsingham, Durham.—Mons. A. Wailly exhibited and remarked on a number of Lepidoptera from Japan. The collection comprised about thirty species, eleven of which, it was stated, were not represented in the British Museum collections.—Mr. A. C. Horner exhibited a number of rare species of Coleoptera, including *Homalota crassicornis*, Gyll., *H. humeralis*, Kr., and *Euryporus picipes*, Pk., collected at Church Stretton, Shropshire; and also *Amara nitida*, Sturm., *Oxypoda amœna*, Fair., *Homalota testaceipes*, Heer, and *Lithocharis apicalis*, Kr., from the neighbourhood of Tonbridge.—Herr Meyer-Darcis exhibited a specimen of *Termitobia physogastra*, Gangelb., a new genus and species of *Brachelytra* obtained in a white ants' nest from the Congo. Dr. Sharp commented on the interesting nature of the exhibition.—Colonel Swinhoe exhibited a collection of moths from Southern India, which comprised about forty species. He also read a paper, describing these species, entitled "New Species of Moths from Southern India."—The Rev. T. A. Marshall communicated a paper entitled "A Monograph of British Braconidæ, Part IV."—Lord Walsingham read a paper entitled "African Micro-Lepidoptera," containing descriptions of seventy-one new species, and of the following nine new genera, viz. *Autochthonus* (type *A. chalybiellus*, Wlsm.), *Scalidoma* (type *Tinea horridella*, Wkr.), *Barbaroscardia* (type *B. fasciata*, Wlsm.), *Odites* (type *O. natalensis*, Wlsm.), *Idiopteryx* (type *Cryptolechia obliquella*, Wlsm.), *Microthauma* (type *M. metallifera*, Wlsm.), *Licmocera* (type *L. lyonetiella*, Wlsm.), *Oxymachæris* (type *O. niveocervina*, Wlsm.), and *Micropostega* (type *M. æneofasciata*, Wlsm.). Several European and American genera were recorded as new to the African fauna; and the occurrence of one Australian and two Indian genera was also noted.

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Linnean Society, November 6.—Prof. Stewart, President, in the chair.—Mr. E. M. Holmes exhibited and made remarks on some little-known seaweeds, including *Monostroma Blythii* and *Capsosiphon aureolus*, collected at Taymouth, *Oscillaria Corallinæ* from Weymouth, and *Schizothrix lardaica* from Paignton. Mr. Holmes pointed out that *Spermothamnion intricatum* gathered near Swanage showed gradual transition to *S. Turneri*, of which it should henceforth be considered only a vegetative form. —Mr. George Murray exhibited and described the peculiarities of some galls of *Rhodymenia* formed by a crustacean.—Prof. G. B. Howes exhibited a specimen of *Lima hians*, with a byssus "nest" which it had spun in 21 days in a vessel of sea-water in which it had been placed. Although constantly watched by day and night, the act of spinning had not been observed.—On behalf of Mr. J. W. Willis Bund, Mr. Harting exhibited and made some remarks upon a South Pacific Petrel (*Œstrelata torquata*, Macg.), which had been shot in Cardigan Bay in December last.—On behalf of Prof. Martin Duncan, who was unable to be present, Mr. P. W. Sladen exhibited two microscopic preparations of the ambulacral ampullæ of Echini, showing that each ampulla is supplied by one offshoot from the main ambulacral water-vessel.—Mr. Harting exhibited a specimen of the Baltimore Oriole (*Icterus Baltimore*), which had been lately obtained at Balta Sound, Shetland.—A paper was then read by Rev. Prof. Henslow, entitled "A Contribution to the Study of the Relative Effects of Different Parts of the Solar Spectrum on the Assimilation of Plants." The paper was illustrated by diagrams, and a discussion followed, in which the President, Prof. H. Marshall Ward, Dr. D. H. Scott, and others took part.

Paris.

Academy of Sciences, November 10.—M. Hermite in the chair.—New researches upon the synthesis of rubies, by MM. E. Fremy and A. Verneuil (fourth communication). The anthors have succeeded in producing rubies on the large scale, and of greater size than heretofore. The artificial stones are as good as the natural rubies for the purposes of the watchmaker. —Study on the fluor-spar of Quincié, by MM. Henri Becquerel and Henri Moissan. The following conclusions concerning the fluor-spar from this locality, long considered of special interest on account of the peculiar odour it evolves on being broken into fragments, have been formulated in this paper: (1) that the fluor-spar from Quincié contains an occluded gas, which is seen to be disengaged when fragments of the spar are broken under the microscope; (2) that all the reactions furnished by the fluor-spar from Quincié may be explained simply by the presence of a small quantity of free fluorine in the occluded gas.—On the approximate representation of a function by rational fractions, by M. H. Padé.—On the analysis of hypophosphorous, phosphorous, and hypophosphoric acids, by M. L. Amat. These acids or their salts may be analyzed either by means of mercuric chloride or potassium permanganate, provided the conditions given are adhered to. The most precise method is that in which mercuric chloride is employed, but the time required is much greater. —Combinations of mercuric cyanide with salts of cadmium, by M. Raoul Varet. Bodies having the following formulæ have been described—

(1) $HgCy_2, CdCy_2, HgI_2, 7H_2O$.
(2) $2HgCy_2, CdBr_2, 4{\cdot}5H_2O$.
(3) $HgCy_2, CdBr_2, 3H_2O$.
(4) $HgCy_2, CdCl_2, 2H_2O$.

—On the preparation and properties of benzoyl fluoride, by M. E. Guenez.—Synthesis of citric acid, by MM. A. Haller and A. Held.—Experimental study of the *rôle* attributed to lymphatic cells in the protection of the organism against the *Bacillus anthracis*, and in the mechanism of adventitious immunity, by M. C. Phisalix. It is shown that the lymphatic ganglion plays both a mechanical and chemical *rôle*: it is an organ that arrests and considerably modifies the form and virulence of the *Bacillus anthracis.*—Experimental production of white tumours in the rabbit by the inoculation of attenuated cultures of Koch's bacillus into the veins, by MM. J. Courmont and L. Dor. The experiments indicate: (1) primitive local tuberculosis appears to be due to the action of an attenuated tubercular virus; (2) after having penetrated directly into the blood, no effect may be observed for some months; (3) the articular synovials, at least in young subjects, favour the implantation of the attenuated tubercular virus more (but without local traumatism) than the visceral organs.—On the development of *Dondersia banyulensis*, by M. G. Pruvot.—New researches on the spores of *Myxospongial* (structure and development), by M. P. Thélohan.—Observations of Norwegian salmon, by M. J. Kunstler.—The Coleopterous parasites of Acridia: the metamorphoses of Mylabrides, by M. J. Kunckel d'Herculais.—On the means (1) of recognizing sections of felspar parallel to the 010 plane, in thin slabs of rocks; (2) of utilizing their optical properties, by M. A. Michel Lévy.

Amsterdam.

Royal Academy of Sciences, October 25.—Prof. van de Sande Bakhuyzen in the chair.—Mr. van Diesen, having referred to his note of January 27, 1872, concerning the disturbances to which the River Maas is liable in times of flood, explained the plan by which it is proposed that the river shall be directed through a new mouth in the Amer, the present mouth near Woudrichem being closed. This work, which is now in full progress, will diminish the said disturbances. He gave a general view of the details of the scheme, and compared it with the project proposed, in 1822, by General Krayenhoff, whose plan for the separation of the Rivers Waal and Maas will be executed more thoroughly than he intended.

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